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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,607	07/03/2003	Kuo-Reay Peng	TS00-284B	7291

7590 06/17/2004

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EXAMINER	
LEWIS, MONICA	
ART UNIT	PAPER NUMBER
2822	

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/613,607	PENG ET AL.	
	Examin r	Art Unit	
	Monica Lewis	2822	

-- Th MAILING DATE of this communication appears on th cover sheet with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 June 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 July 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/29/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the response to the restriction filed June 11, 2004.

Election/Restrictions

2. The restriction requirement (3/12/04) is withdrawn because the Applicant disclosed that the Group II claims 16-37 were cancelled upon the filing of this divisional application.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference character(s) mentioned in the description: a) 320 (See Page 2 Line 3); and b) 38 (See Page 8 Line 16). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: a) 250, 230, 270 (See Figure 1); b) 21, 30 (See Figure 2); c) SCR1, SCR2 (See Figure 3); d) 80, 82, 84, 86, 88, 90, 92, 94, 96 and 98 (See Figure 4); e) 28 (See Figure 5D); and f) 66 (See Figure 5F). . Corrected drawing sheets, or amendment to the specification to add the reference character(s) in the description, are required in reply to the Office action to avoid abandonment of the application.

Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because of the following: a) reference character "300" has been used to designate both contacts and N well (See Page 2 Lines 7 and 17); and b) reference character "30" has been used to designate both gate oxide and polysilicon (See Page 8 Lines 14 and 15). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear what is meant in claim 6 and claim 7. Applicant in claim 6 states that the first and fourth elements are the drain elements and then in claim 7 it is stated that the second and fourth are the drain elements. It is not clear how all four elements are drains. Claim 1, line 6, incorrectly recites that the second doped region is "of opposite **dopent** than said **second** doped region." Presumably, the second doped region is of a dopant opposite to the **first** doped region. Moreover, dopant is misspelled in lines 5, 6, and 8 of claim 1.

8. Claim 8 recites the limitation "said gate elements." Finally, Claim 9 recites the limitation "said polysilicon." There is insufficient antecedent basis for these limitations in the claims.

Specification

9. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: a) electrical system for said first and fourth of said third doped region consists of aluminum metallurgy or aluminum doped with 1% silicon metallurgy and is connected to a first voltage source consisting of the input pad of said active semiconductor devices (See Claim 13); and b) electrical system for said second doped region consists of aluminum metallurgy or aluminum doped with 1% silicon metallurgy and is connected to a first voltage source consisting of the input pad of said active semiconductor devices (See Claim 14).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 1, 3-7, 9, 12 and 15, as far as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art in view of Jun et al. (U.S. Publication No. 2002/0084485) and Floyd et al. (U.S. Publication No. 2002/0055232).

In regards to claim 1, Applicant's Prior Art discloses the following:

a) a first doped region (180) of opposite dopant than said substrate (100) (For Example: See Figure 1);

b) a second doped region (32) within said first doped region of opposite dopant than said second doped region (For Example: See Figure 1);

c) a plurality of third doped regions (261, 241, 242, 262) within said substrate of opposite dopent than said substrate (For Example: See Figure 1);

d) a gate structure overlaying said substrate between a first element and second element of said third doped regions (For Example: See Figure 1);

e) a gate structure overlaying said substrate between a third element and fourth element of said third doped regions (For Example: See Figure 1); and

f) a plurality of fourth doped regions (300) within said substrate of similar dopent as said substrate (See Figure 1);

g) an electrical connection system for said second doped region (For Example: See Figure 1 and Page 2 Lines 6); and

h) an electrical connection system for said first and fourth elements of said third doped regions and for the first and second elements of said fourth doped regions (For Example: See Figure 1 and Page 2 Lines 6).

In regards to claim 1, Applicant's Prior Art fails to disclose the following:

a) a first isolation element between said second element of said third doped region and a first side of said second doped region and a second isolation element between said third element of said third doped region and a second side of said second doped region.

However, Jun et al. ("Jun") discloses the use of isolation elements (For Example: See Figure 3a). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Applicant's Prior Art Drawing to include the use of isolation elements as disclosed in Jun because it aids in reducing avalanche breakdown (For Example: See Paragraph 2).

Additionally, since Applicant's Prior Art and Jun are both from the same field of endeavor, the purpose disclosed by Jun would have been recognized in the pertinent art of Applicant's Prior Art.

b) a surface passivation layer for said ESD protection system.

However, Floyd et al. ("Floyd") discloses the use of the surface passivation layer for said ESD protection device (For Example: See Paragraph 40). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Applicant's Prior Art Drawing to include the use the surface passivation layer for said ESD protection device consists of BPSG as disclosed in Floyd because it aids in capping the device (For Example: See Figure 7), thereby protecting the device from contaminants and damage during handling.

Additionally, since Applicant's Prior Art and Floyd are both from the same field of endeavor, the purpose disclosed by Floyd would have been recognized in the pertinent art of Applicant's Prior Art.

In regards to claim 3, Applicant's Prior Art fails to disclose the following:

a) first doped region is doped with a donor element such as As to a concentration between 5E15 to 1E18 a/cm3 and has a width between .5 um and a depth between .5 and 6 um to form a N-well.

However, the applicant has not established the critical nature of "first doped region is doped with a donor element such as As to a concentration between 5E15 to 1E18 a/cm3 and has a width between .5 um and a depth between .5 and 6 um to form a N-well." "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir.1990). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have various ranges.

In regards to claim 4, Applicant's Prior Art fails to disclose the following:

a) second doped region is doped with an acceptor element such as boron to a concentration between 1E19 and 1E21 a/cm^3.

However, the applicant has not established the critical nature of "second doped region is doped with an acceptor element such as boron to a concentration between 1E19 and 1E21 a/cm^3." "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir.1990). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have various ranges.

In regards to claim 5, Applicant's Prior Art fails to disclose the following:

a) third doped region is doped with an acceptor element such as arsenic to a concentration between 1E19 and 1E21 a/cm^3.

However, the applicant has not established the critical nature of "third doped region is doped with an acceptor element such as arsenic to a concentration between 1E19 and 1E21 a/cm^3." "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir.1990). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have various ranges.

In regards to claim 6, Applicant's Prior Art discloses the following:

a) first and fourth elements of said third doped regions form the N+ drain regions (For Example: See Figure 1).

In regards to claim 7, Applicant's Prior Art discloses the following:

a) second and third elements of said third doped regions form the drain regions of the NFET elements and are electrically floating (For Example: See Figure 1).

In regards to claim 9, Applicant's Prior Art fails to disclose the following:

a) polysilicon is doped with a donor element to a concentration between 1E19 and 1E21 a/cm^3.

However, the applicant has not established the critical nature of "polysilicon is doped with a donor element to a concentration between 1E19 and 1E21 a/cm^3." "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the

particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir.1990). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have various ranges.

In regards to claim 12, Applicant's Prior Art fails to disclose the following:

a) plurality of fourth doped regions are doped with an acceptor element such as boron to a concentration between 1E19 and 1E21 a/cm^3.

However, the applicant has not established the critical nature of "fourth doped region is doped with an acceptor element such as boron to a concentration between 1E19 and 1E21 a/cm^3." "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir.1990). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have various ranges.

In regards to claim 15, Applicant's Prior Art fails to disclose the following:

a) a surface passivation layer for said ESD protection system consists of deposited SiO_2 doped with boron and phosphorous to form BPSG.

However, Floyd discloses the use of the surface passivation layer for said ESD protection device consists of BPSG (For Example: See Paragraph 40). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Applicant's Prior Art Drawing to include the use the surface passivation layer for said ESD protection device consists of BPSG as disclosed in Floyd because it aids in capping the device

(For Example: See Figure 7), thereby protecting the device from contaminants and damage during handling.

Additionally, since Applicant's Prior Art and Floyd are both from the same field of endeavor, the purpose disclosed by Floyd would have been recognized in the pertinent art of Applicant's Prior Art.

Finally, the following limitation makes it a product by process claim: a) "deposited SiO_2 doped with boron and phosphorous to form BPSG." The MPEP § 2113, states, "Even though product -by[-] process claims are limited by and defined by the process, determination of patentability is based upon the product itself. The patentability of a product does not depend on its method of production. If the product in product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product is made by a different process." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985)(citations omitted).

A *"product by process"* claim is directed to the product per se, no matter how actually made, *In re Hirao and Sato et al.*, 190 USPQ 15 at 17 (CCPA 1976) (footnote 3). See also *In re Brown and Saffer*, 173 USPQ 685 (CCPA 1972): *In re Luck and Gainer*, 177 USPQ 523 (CCPA 1973); In re Fessmann, 180 USPQ 324 (CCPA 1974); and *In re Marosi et al.*, 218 USPQ 289 (CAFC 1983) final product per se which must be determined in a *"product by, all of"* claim, and not the patentability of the process, and that an old or obvious product, whether claimed in *"product by process"* claims or not. Note that Applicant has the burden of proof in such cases, as the above caselaw makes clear.

12. Claim 2, as far as understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art in view of Jun et al. (U.S. Publication No. 2002/0084485), Floyd et al. (U.S. Publication No. 2002/0055232) and Sheu et al. (U.S. Patent No. 5,998,832).

In regards to claim 2, Applicant's Prior Art fails to disclose the following:

a) substrate consists of silicon semiconductor material doped to a concentration between 1E15 and 1E16a/cm^3.

However, Sheu et al. ("Sheu") discloses the use of a substrate that consists of silicon semiconductor material doped to a concentration between 1E15 and 1E16a/cm^3 (For Example: See Column 2 Lines 55-67). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Applicant's Prior Art Drawing to include the use of a substrate that consists of silicon semiconductor material doped to a concentration between 1E15 and 1E16a/cm^3 as disclosed in Pelella because it aids in improving the circuit resistance (For Example: See Column 1 Lines 45-67 and Column 2 Lines 1-33).

Additionally, since Applicant's Prior Art and Sheu are both from the same field of endeavor, the purpose disclosed by Sheu would have been recognized in the pertinent art of Applicant's Prior Art.

Finally, the applicant has not established the critical nature of "substrate consists of silicon semiconductor material doped to a concentration between 1E15 and 1E16a/cm^3." "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d

1934 (Fed. Cir.1990). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have various ranges.

13. Claim 8, as far as understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art in view of Jun et al. (U.S. Publication No. 2002/0084485), Floyd et al. (U.S. Publication No. 2002/0055232) and Liau et al. (U.S. Patent No. 5,783,850).

In regards to claim 8, Applicant's Prior Art fails to disclose the following:

a) the gate elements are comprised of gate oxide to a thickness of between 50 and 300A and polysilicon to a thickness between 3000 and 6000A.

However, Liau et al. ("Liau") discloses the use of gate elements that are comprised of gate oxide to a thickness of between 50 and 300A and polysilicon to a thickness between 3000 and 6000A (For Example: See Column 1 Line 46 and Column 4 Lines 14-18). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Applicant's Prior Art Drawing to include the use of gate elements that are comprised of gate oxide to a thickness of between 50 and 300A and polysilicon to a thickness between 3000 and 6000A as disclosed in Liau because it aids in increasing speed (For Example: See Column 6 Lines 14-18).

Additionally, since Applicant's Prior Art and Liau are both from the same field of endeavor, the purpose disclosed by Liau would have been recognized in the pertinent art of Applicant's Prior Art.

Finally, the applicant has not established the critical nature of "the gate elements are comprised of gate oxide to a thickness of between 50 and 300A and polysilicon to a thickness between 3000 and 6000A." "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such

a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir.1990). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have various ranges.

14. Claim 10, as far as understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art in view of Jun et al. (U.S. Publication No. 2002/0084485), Floyd et al. (U.S. Publication No. 2002/0055232) and Chang (U.S. Patent No. 5,814,547).

In regards to claim 10, Applicant's Prior Art fails to disclose the following:

a) the isolation elements consists of shallow trench isolation structures with a width of between .1 and 3 um and a depth of between .5 and 4 um.

However, Chang discloses the use of isolation elements that consist of shallow trench isolation structures with a width of between .1 and 3 um and a depth of between .5 and 4 um (For Example: See Column 2 Lines 32-59). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Applicant's Prior Art Drawing to include the use of isolation elements that consist of shallow trench isolation structures with a width of between .1 and 3 um and a depth of between .5 and 4 um as disclosed in Chang because it aids in providing the use of less surface area (For Example: See Column 1 Lines 29-31).

Additionally, since Applicant's Prior Art and Chang are both from the same field of endeavor, the purpose disclosed by Chang would have been recognized in the pertinent art of Applicant's Prior Art.

Finally, the applicant has not established the critical nature of "the isolation elements consists of shallow trench isolation structures with a width of between .1 and 3 um and a depth

of between .5 and 4 um." "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir.1990). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have various ranges.

15. Claim 11, as far as understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art in view of Jun et al. (U.S. Publication No. 2002/0084485), Floyd et al. (U.S. Publication No. 2002/0055232) and Hau et al. (U.S. Patent No. 6,475,875).

In regards to claim 11, Applicant's Prior Art fails to disclose the following:

a) the isolation elements are filled with a first layer of SiO_2 to a thickness of between 50 and 500A and then filled with a second layer of SiO_2 to said substrate surface.

However, Hau et al. ("Hau") discloses the use of the isolation elements are filled with a first layer of SiO_2 to a thickness of between 50 and 500A and then filled with a second layer of SiO_2 to said substrate surface (For Example: See Column 3 Lines 39-44). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Applicant's Prior Art Drawing to include the use of isolation elements are filled with a first layer of SiO_2 to a thickness of between 50 and 500A and then filled with a second layer of SiO_2 to said substrate surface as disclosed in Hau because it aids in providing isolation of various components (For Example: See Column 2 Lines 6-60).

Additionally, since Applicant's Prior Art and Hau are both from the same field of endeavor, the purpose disclosed by Hau would have been recognized in the pertinent art of Applicant's Prior Art.

16. Claims 13 and 14, as far as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art in view of Jun et al. (U.S. Publication No. 2002/0084485), Floyd et al. (U.S. Publication No. 2002/0055232) and Wolf *Silicon Processing*.

In regards to claim 13, Applicant's Prior Art fails to disclose the following:

a) electrical system for said second doped region consists of aluminum metallurgy or aluminum doped with 1% silicon metallurgy and is connected to a first voltage source consisting of the input pad of said active semiconductor devices.

However, Wolf discloses the use of the aluminum metallization (For Example: See Page 191). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Applicant's Prior Art Drawing to include the use of aluminum metallization as disclosed in Wolf because it aids in providing low resistivity (For Example: See Page 191).

Additionally, since Applicant's Prior Art and Wolf are both from the same field of endeavor, the purpose disclosed by Wolf would have been recognized in the pertinent art of Applicant's Prior Art.

In regards to claim 14, Applicant's Prior Art fails to disclose the following:

a) electrical system for said first and fourth doped region consists of aluminum metallurgy or aluminum doped with 1% silicon metallurgy and is connected to a first voltage source consisting of the input pad of said active semiconductor devices.

However, Wolf discloses the use of the aluminum metallization (For Example: See Page 191). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Applicant's Prior Art Drawing to include the use of aluminum metallization as disclosed in Wolf because it aids in providing low resistivity (For Example: See Page 191).

Additionally, since Applicant's Prior Art and Wolf are both from the same field of endeavor, the purpose disclosed by Wolf would have been recognized in the pertinent art of Applicant's Prior Art.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica Lewis whose telephone number is 571-272-1838. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 571-272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722 for regular and after final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956

ML
June 12, 2004

Mary Wilczewski
Primary Examiner